

Climatological Data for August, 1909.

DISTRICT No. 4, LAKE REGION.

Prof. HENRY J. COX, District Editor.

TEMPERATURE.

The mean temperature during the month as a whole was above the normal over the greater portion of the district. It was below the normal from Cleveland, Ohio, eastward, with the exception of the New York shore of western Lake Ontario. In that portion of the district lying along the Wisconsin shore of Lake Michigan, the eastern portion of the Upper Peninsula of Michigan, and the northern and western portions of the Lower Peninsula, the excess of temperature was greatest. The following show the greatest departures from the normal mean temperatures in this region: Cassopolis, Mich., +8.0°; West Branch, Mich., +7.9°; Harbor Beach, Owen, and Onaway, Mich., +6.2°; Gladwin, Mich., +5.7°; Benzonia, and St. Ignace, Mich., +5.6°; Webberville, Mich., +5.5°; Manistee, and Mount Pleasant, Mich., +5.4°; Grayling, Mich., +5.3°; Crandon, Wis., +4.7°; Fond du Lac, Wis., +4.5°; and Green Bay, Wis., +4.4°.

Over these sections, and as far east as central Ohio, the temperature was generally high throughout the greater portion of the month. The warmest periods of the month over the entire district were from the 2d to the 9th, and from the 23d to the 28th, respectively, the highest temperatures being generally recorded during the latter period. A cool period overspread the entire district from the 28th to the 31st, and the lowest minimum temperatures of the month occurred during this time. At the majority of stations temperatures of 50° or lower were recorded. At several stations in New York and Vermont they were lower than 40°, and at Indian Lake, N. Y., on the morning of the 31st, the temperature fell to 20°. Frost and frost temperatures occurred generally throughout most of the northern counties and highlands of New York and Vermont, and also in the interior of the Upper Peninsula of Michigan, and the northern counties of the Lower Peninsula.

A cool period was also experienced from the 20th to the 22d, when frosts were reported from the same sections.

In the eastern portions of the district, where the mean temperatures were below the normal, low minimum temperatures were frequent throughout the entire period. Temperatures of 50° or lower occurred at Angelica, N. Y. on 21 days; at Old Forge, N. Y., on 19 days; and at Northfield, Vt., on 18 days.

PRECIPITATION.

The precipitation was above the normal over southern Wisconsin, Illinois, Indiana, and the western and southern portions of the Lower Peninsula of Michigan, being greatest in the southwestern portion of this region, where the departure was +3.32 inches at Chicago, Ill. The rainfall was also in excess of the normal amount over the western Lake Superior region, but elsewhere there was a deficiency of precipitation, amounting to more than an inch in nearly all localities.

The rainfall was well distributed throughout the month over all sections except New York, where the first fourteen days were unusually dry, and many portions of the St. Lawrence watershed experienced a drought which approached in severity that of 1908. The period of greatest rainfall extended from the 8th over the western portion of the district, to the 21st in the Lake Champlain region, although, except in a few instances, the falls were not excessive. Twenty-four-hour falls of 3 inches or more occurred at only four stations: Chicago, Ill., 3.52 inches; Highland, Mich., 3.30 inches; Upper Sandusky, Ohio, 4.85 inches; and Defiance, Ohio, 4.00 inches—all on the 15th.

In general, over the eastern portions of the district, there was a greater number of clear days, with more sunshine than is usual, while over the western portions about normal conditions in this respect prevailed.

TABLE 1.—Climatological data for August, 1909. District No. 4, Lake Region.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.				Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total rainfall unmailed.	Number of rainy days, 0.1 inch or more.	Number of partly cloudy days.	Number of cloudy days.		
<i>Minnesota.</i>																			
Duluth.	St. Louis.	1,133	38	64.6	- 0.3	84	15	41	31	24	4.91	+ 1.38	2.82	0.0	10	10	9	12	ne.
Floodwood.	do.	1,257	5	65.4 ^d	+ 27	89 ^d	20	39 ^d	20	30	5.53	+ 1.55	0.0	0.0	11	20	3	5	nw.
Mount Iron.	do.	1,510	15	66.4	+ 4.3	83	27	40	20	31	8.13	+ 4.41	1.15	0.0	10	10	5	16	s.
Stephens Mine.	do.	2	65.2			88	27	38	20	37	7.78		1.57	0.0	15	14	7	10	se.
Two Harbors.	Lake.	692	15	65.2	+ 2.1	86	16	41	31	31	5.60	+ 1.92	1.95	0.0	8	16	7	8	sw.
<i>Wisconsin.</i>																			
Appleton.	Outagamie.	795	10	71.0	+ 3.6	94	24 ^b	41	21	40	2.24	- 0.25	0.56	0.0	10	16	1	14	se.
Ashland.	Ashland.	647	15	68.3	+ 1.9	93	27	45	30	32	4.14	+ 0.99	1.65	0.0	14	19	5	7	ne.
Cecil.	Shawano.	804	2	72.9		94	23	48	21 ^b	36	1.69		0.39	0.0	7	13	3	3	sw.
Chilton.	Calumet.	860	15	70.4	+ 2.5	93	6	48	30	35	5.24	+ 2.59	1.31	0.0	7	14	14	3	sw.
Crandon.	Forest.	1,060	13	67.8	+ 4.7	92	24	39	20	32	3.03	- 0.67	0.90	0.0	7	19	12	0	w.
Florence.	Fond du Lac.	1,293	17	66.2 ^b	+ 2.9	90 ^b	24 ^b	40 ^b	30	37	3.92	- 0.43	0.84	0.0	8	17	5	9	nw.
Fond du Lac.	Grand River Locks.	800	23	72.0	+ 4.5	97	67	47	21	42	3.36	- 0.39	1.26	0.0	7	20	2	2	sw.
Marquette.	Green Bay.	618	1	72.0		94	8	46	20	39	3.21	- 0.96	1.20	0.0	7	25	4	2	se.
Brown.	Herster.	617	23	71.4	+ 4.4	94	24	46	31	30	1.24	- 1.33	0.40	0.0	8	7	12	13	se.
Bayfield.	Iron River.	700	1	63.4 ^a		96 ^a	5	39 ^a	20 ^b	49	4.37		1.50	0.0	10	18 ^a	2 ^a	10 ^a	w.
Bayfield.	Keweenaw.	1,096																	Harry C. Hale.
Keweenaw.	Manitowoc.	590	69.8	+ 3.5		95	23	50	30	31	2.08		1.10	0.0	8	12	6	13	s.
Winnebago.	Menasha.	618	59	69.2	+ 3.5	93	24 ^b	49	21	31	2.33	- 0.11	1.43	0.0	10	10	12	9	sw.
Menomonee Falls.	Waukesha.	764	12	71.1		92	8	46	30	31	3.03	- 0.44	0.0	0.0	7	19	4	3	s.
Milwaukee.	Milwaukee.	681	39	71.9	+ 3.2	92	8	49	31	35	3.18	+ 0.36	0.77	0.0	8	18	10	3	ne.
New London.	Outagamie.	762	13	71.6	+ 3.9	95	67	48	21 ^b	36	3.58	+ 0.92	1.00	0.0	9	16	6	9	sw.
Oconto.	Oconto.	590	18	70.4	+ 3.3	94	24	43	30	35	0.90	- 1.78	0.27	0.0	5	15	13	3	s.
Oshkosh ^d .	Winnebago.	744	20	71.0	+ 2.2	92	67	50	20 ^b	36			1.58	0.0	4	17	9	1	sw.
Pine River.	Waushara.	900	14	70.6	+ 2.7	92	67	46	29	34	3.98	+ 0.94	1.06	0.0	8	12	14	5	nw.
Plum Island.	Door.	588	1	70.4		85	7	47	21	28	1.97		0.61	0.0	7	6	14	11	s.
Port Washington.	Ozaukee.	713	16	70.9	+ 3.5	93	57	52	39 ^b	28	4.34	+ 1.36	2.01	0.0	6	18	6	7	se.
Racine.	Racine.	633	12	72.9	+ 2.6	96	8	52	21 ^b	31	2.90	- 0.26	1.14	0.0	10	19	6	6	ne.
Sheboygan.	Sheboygan.	831	9	71.8	+ 3.3	95	25	53	21 ^b	30	3.68	+ 0.87	0.86	0.0	10	13	14	4	se.
Sturgeon Bay.	Door.	600	11	69.0	+ 3.1	93	15	40	30	36	0.95		0.50	0.0	6	12	15	4	s.
Superior ^d .	Douglas.	671	11	65.7		88	4	48	31	30	4.68		2.02	0.0	15	12	10	9	ne.
Waupaca.	Waupaca.	857	13	71.0	+ 3.0	95	6	48	20 ^b	39	4.20	+ 0.93	1.24	0.0	9	14	4	13	sc.
<i>Illinois.</i>																			U. S. Weather Bureau.
<i>Indiana.</i>	Cook.	824	39	71.2	+ 3.6	93	8	50	31	21	6.20	+ 3.32	3.52	0.0	10	14	12	5	ne.
Auburn.	Dekalb.	874	6	71.2	- 0.7	94	8	44	22	39	3.38	+ 0.14	2.70	0.0	6	19	2	10	e.
Elkhart.	Elkhart.	801		75.0		96	9 ^b	54	21	29	4.21		1.40	0.0	10				sw.
Fort Wayne.	Allen.	775	5	74.0	+ 1.8	95	57	46	22	39	2.32	- 1.76	0.83	0.0	7	17	10	4	sw.
Hammond.	Lake.	598	12	75.0	+ 4.0	95	8	47	30	35	3.17	+ 1.20	1.67	0.0	5	11	11	9	sw.
Lima.	Lagrange.	886	12	73.0		96	8	48	30	43	6.63		2.55	0.0	9	23	2	6	w.
South Bend.	St. Joseph.	726	10	73.0	+ 0.2	92	8	47	21	32	3.68	+ 0.56	1.48	0.0	9	20	5	6	s.
<i>Michigan.</i>																			B. F. Gibbs.
Adrian.	Lenawee.	707	31	72.8	+ 3.3	95	87	44	22	43	1.32	- 1.87	0.35	0.0	8	12	13	6	w.
Agricultural College.	Ingham.	820	45	70.8		93	25	44	30	32	1.61	- 1.25	0.63	0.0	10	19	9	3	e.
Allegan.	Allegan.	693	18	72.8	+ 2.8	94	24	45	31	39	5.02	+ 2.86	1.35	0.0	7	9	16	6	w.
Alma.	Gratiot.	750	23	70.2	+ 3.0	94	25	39	30	36	1.32	- 1.42	0.45	0.0	8	11	13	7	nw.
Alpena.	Alpena.	609	36	67.4	+ 3.6	93	24	42	21	29	1.23	- 2.25	0.34	0.0	12	8	18	5	nw.
Ann Arbor.	Washtenaw.	930	39	71.0	+ 1.8	95	25	42	23	38	1.25	- 1.34	0.49	0.0	10	15	10	6	sw.
Arbela.	Tuscola.	738	13	71.2	+ 2.6	97	25	39	21 ^b	37	2.02	- 0.68	0.97	0.0	5	5	5	5	sw.
Ball Mountain.	Oakland.	938	19	70.1	+ 2.6	94	25	47	21 ^b	31	3.25	+ 0.36	1.94	0.0	0	5	15	7	sw.
Baraga.	Baraga.	623	7	66.4 ^a	+ 2.5	92	7	40 ^b	30	38 ^a					0	21	0	10	n.
Battle Creek.	Calhoun.	822	25	71.6	+ 0.9	91	24 ^b	51	22	32	3.51	+ 0.82	1.40	0.0	6	17	11	3	sw.
Bay City.	Bay.	593	13	70.6	+ 2.3	94	8	44	29	31	0.73	- 2.36	0.20	0.0	26	4	1	1	e.
Benson.	Benzie.	832	13	70.2	+ 5.6	94	7	41	21	37	0.48	- 2.33	0.24	0.0	4	15	10	6	sw.
Berlin.	St. Clair.	20	69.4	+ 1.2		94	25	41	30	38	0.32	- 0.31	2.13	0.0	8	5	18	7	sw.
Big Rapids.	Mecosta.	906	13	69.3	+ 3.7	95	7	36	21	40	2.02	- 0.91	1.62	0.0	8	19	8	4	se.
Blayne.	Schoolcraft.	2	58.5			92	5	30	17	47	2.70		0.95	0.0	6	24	0	7	sw.
Bloomingdale.	Van Buren.	5	71.6			92	8	46	30	32	3.69		1.45	0.0	8	21	3	3	sw.
Cadillac.	Wexford.	1,378	70.6			95	7	38 ^a	30	40 ^a	1.17		0.50	0.0	6	15	11	5	n.
Calumet.	Houghton.	1,246	21	65.4	+ 3.2	86	27	49	30	34	2.01	- 0.02	0.59	0.0	11	12	13	6	w.
Cassopolis.	Cass.	903	8	73.0	+ 8.0	91	7 ^b	49	30	28	3.47	+ 0.63	1.34	0.0	5	27	0	4	se.
Charlevoix.	Charlevoix.	610	23	68.6	+ 2.3	93	24	40	31	34	2.01	- 0.39	0.72	0.0	9	22	4	5	nw.
Charlotte.	Chattham.	5	70.2			91	25	44	21 ^b	34	2.01		0.50	0.0	11	12	13	6	w.
Chatham.	Alger.	875	8	62.9	- 0.4	91	6	28	30	41	2.17	- 1.11	0.64	0.0	12	12	12	7	sw.
Cheboygan.	611	19	68.4	+ 3.6	92	27	39	21 ^b	41	2.30	- 1.32	0.65	0.0	6	4	25	2	w.	
Clinton.	Lenawee.	830	19	71.7	+ 1.6	95	7	43	24	32	1.12	- 1.31	0.34	0.0	8	18	10	3	nw.
Coldwater.	Branch.	984	12	72.5 ^b	+ 2.6	92 ^b	7	47 ^b	30	39 ^b	4.94	+ 1.14	1.80	0.0	6	22	8	1	sw.
Concord.	Jackson.	4	71.2			91	7 ^b	46	30	37	1.42		0.70	0.0	3	14	16	1	ne.
Cruton.	Newago.	681	1	70.9		94	7	41	21	39	2.09		0.77	0.0	7	3	28	0	nw.
Deer Park.	Luce.	610	8	65.2	+ 3.7	91	6	41	21	39	3.00	- 0.08	0.90						

TABLE 1.—Climatological data for August, 1909. District No. 4—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.				Precipitation, in inches.				Sky.				Prevailing wind direction.	Observers.					
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, 1/1 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.				
<i>Michigan—Cont'd.</i>																						
Holland.	Ottawa.	610	3	70.8	+ 2.8	89	3†	42	30	32	3.09	-	0.75	0.0	10	17	12	1	nw.	City of Holland.		
Houghton.	Houghton.	663	8	66.1	+ 3.8	90	27	44	30	35	1.58	-	1.29	0.44	0.0	12	10	12	9	e.	U. S. Weather Bureau.	
Howell.	Livingston.	924	17	71.7	+ 3.8	93	25	42	30	32	2.31	-	0.52	1.65	0.0	5	18	6	7	sw.	Frank Sharp.	
Humboldt.	Marquette.	1,536	12	63.4	+ 3.9	90	6	28	30	46	2.40	-	0.01	0.98	0.0	6	11	7	13	e.	Agent, D. S. S. A. Ry.	
Iron Mountain ^a .	Dickinson.	1,111	3	68.0	+ 3.9	93	24	41	31	38	0.85	-	2.01	0.47	0.0	3	5	14	9	nw.	Chapin Min. Co.	
Iron River.	Iron.	1,504	12	66.2	+ 4.0	89	5†	36	30	42	3.17	-	1.03	0.75	0.0	10	19	7	5	s.	Victor D. Laing.	
Ironwood.	Gogebic.	1,520	6	67.8	+ 3.9	87	27	43	30	28	2.70	-	0.05	1.35	0.0	11	20	8	3	s.	Prof. J. V. Brennan.	
Ishpeming.	Marquette.	1,536	6	65.6 ^b	+ 3.4	90 ^c	6	34 ^d	30	33 ^d	2.17	-	1.48	0.70	0.0	9	10	14	7	nw.	Clo'd Cliffs Iron Co.	
Isle Royale.	Keweenaw.	610	20	59.6	-	77	9†	45	1	26	1.37	-	0.45	0.0	0	9	12	1	18	ne.	John H. Malone.	
Ivan.	Kalkaska.					98	24	34	21	46	1.45	-	1.60	0.96	0.0	7	12	16	3	se.	O. L. Giddings.	
Jackson.	Jackson.	927	12	72.0	+ 1.2	95	8†	47	30	39	2.10	-	0.08	0.88	0.0	10	11	11	9	nw.	Agent, M. C. R. R.	
Jeddo.	St. Clair.	667	20	70.3	+ 2.4	96	25	44	30	35	1.44	-	1.43	0.48	0.0	8	9	10	12	nw.	William Bice.	
Kalamazoo ^a .	Kalamazoo.	955	33	70.3	+ 0.4	87	8†	48	30	37	2.97	-	1.38	2.10	0.0	4	16	9	3	nw.	Kalamazoo Asylum.	
Lansing.	Ingham.	881	32	71.2	+ 2.7	93	25	45	30	31	2.03	-	0.56	0.66	0.0	12	12	9	10	sw.	State Board of Health.	
Lapeer.	Lapeer.	827	10	71.0	+ 4.1	95	25	44	31	34	1.85	-	0.45	0.65	0.0	8	26	5	0	sw.	Michigan Home.	
Ludington ^a .	Mason.	586	11	68.6	+ 1.0	88	7	48	13	24	1.96	-	0.08	0.96	0.0	3	20	6	0	sw.	Agent, P. M. R. R.	
Mackinac Island.	Mackinac.	831	9	68.0	+ 2.5	86	24†	42	21	26	4.22	-	0.71	1.50	0.0	9	21	6	4	n.	M. I. S. P. Com.	
Mackinaw.	Cheboygan.	592	13	67.8	+ 2.3	93	24	40	21	33	2.05	-	1.97	1.00	0.0	3	16	14	1	nw.	Agent, G. R. & I. Ry.	
Mancelona.	Antrim.	1,121	13	67.5	+ 3.0	94	24	35	21	42	1.40	-	1.00	1.15	0.0	3	27	2	2	s.	Do.	
Manistee.	Manistee.	600	12	70.4	+ 5.4	91	24	41	31	33	-	-	0.0	0	19	11	1	1	nw.	Agent, P. M. R. R.		
Maple Ridge.	Delta.	3	64.5	90	8	30	30	40	1	64	-	-	0.34	0.0	9	10	3	18	s.	Herman Johnson.		
Marquette.	Marquette.	734	38	65.8	+ 2.3	92	8	44	30	28	1.34	-	1.52	0.36	0.0	13	11	9	11	nw.	U. S. Weather Bureau.	
Menominee.	Menominee.	581	10	69.0 ^b	+ 2.2	94 ^c	24	49 ^d	29 ^d	32 ^d	0.50	-	1.88	0.34	0.0	4	18	9	4	sw.	Fire Department.	
Midland ^a .	Midland.	604	10	70.7	+ 1.8	96	25	45	21	31	-	-	0.0	0	16	4	2	sw.	Agent, P. M. R. R.			
Montague ^a .	Muskegon.	680	6	68.4	+ 0.9	86	8†	43	27	33	-	-	0.0	0	11	10	4	sw.	G. A. Whitbeck.			
Morencie.	Leamore.	811	2	70.6	-	91	8†	43	22	36	1.76	-	0.86	0.0	0	7	12	3	se.	George J. Tripp.		
Mount Clemens.	Macomb.	615	9	70.2	+ 0.5	95	25	45	21	33	1.73	-	0.01	0.56	0.0	6	12	14	5	se.	Herman H. Orbits.	
Mount Pleasant.	Isabella.	826	10	72.6	+ 5.4	98	8	41	21	33	0.98	-	1.36	0.70	0.0	3	19	11	1	sw.	Agent, P. M. R. R.	
Muskegon.	Muskegon.	587	13	69.6	+ 1.1	87	8	43	21†	27	0.59	-	1.52	0.45	0.0	2	24	3	4	w.	Agent, G. R. & I. Ry.	
Newberry.	Luce.	773	8	-	-	89	7	-	-	-	-	-	0.0	0	23	0	9	0	e.	E. O. Ladd.		
Old Mission.	Grand Traverse.	848	15	70.2	+ 3.1	93	24	44	30	31	2.38	-	0.56	1.08	0.0	9	8	17	6	n.	Prof. G. A. Knapp.	
Olivet.	Eaton.	934	18	69.6	+ 1.6	88	25	47	30	25	4.57	-	1.90	2.08	0.0	10	16	7	8	sw.	Agent, D. & M. R. Ry.	
Omer.	Arenac.	618	10	70.5	+ 0.2	96	25†	48	36	48	0.75	-	1.52	0.45	0.0	2	7	23	1	sw.	Fred W. Shaw.	
Onaway.	Presque Isle.	826	6	69.4	+ 6.2	94	7†	34	30	54	3.15	-	0.23	0.85	0.0	7	5	0	26	se.	Agent, P. M. R. R.	
Ovid.	Clinton.	760	19	71.2	+ 3.5	98 ^c	25	40	30	39 ^c	1.46	-	0.82	0.49	0.0	8	15	7	9	s.	George B. Faxon.	
Owosso.	Shiawassee.	731	12	71.6	+ 1.6	95	25	40	30	37	1.23	-	0.96	0.30	0.0	8	3	28	0	sw.	Owosso Sugar Co.	
Potoskey.	Emmet.	680	19	68.3	+ 3.2	93	24	40	39	33	1.64	-	1.45	0.70	0.0	8	15	12	4	w.	Agent, G. R. & I. Ry.	
Plymouth.	Wayne.	725	12	71.3	+ 1.0	98	25	42	31	42	2.71	-	0.93	1.49	0.0	4	18	0	13	se.	Agent, P. M. R. R.	
Pontiac.	Oakland.	935	9	71.0	+ 3.3	95	25	47	21	36	1.66	-	1.28	0.63	0.0	8	22	5	4	sw.	Fred W. Shaw.	
Port Austin ^a .	Huron.	618	13	68.4	+ 2.1	94	25	47	11	37	0.91	-	1.43	0.41	0.0	3	5	23	1	ne.	Agent, P. M. R. R.	
Port Huron.	St. Clair.	639	34	69.4	+ 2.1	94	25	48	30	28	2.23	-	0.40	0.67	0.0	9	12	8	11	ne.	U. S. Weather Bureau.	
Powers.	Menominee.	863	8	67.9	+ 4.9	94	25†	33	30	41	0.80	-	0.40	0.0	0	3	10	19	2	sw.	Agent, C. & N. W. Ry.	
Reed City.	Oceola.	1,033	13	70.2	+ 3.1	88	5	40	21	39	1.20	-	0.09	0.30	0.0	7	25	2	4	w.	Agent, P. M. R. R.	
Roscommon ^a .	Roscommon.	1,141	5	68.4	-	96	25	27	21	51	1.45	-	1.35	0.60	0.0	5	15	14	0	w.	Agent, M. C. R. R.	
Saginaw.	Saginaw.	601	7	72.3	+ 3.7	95	25	46	30	30	1.18	-	2.04	0.55	0.0	6	7	23	1	ne.	Postmaster.	
Saginaw, W. S.	do.	601	14	71.4	+ 2.2	96	25	42	30	32	1.27	-	1.82	0.63	0.0	8	11	9	11	sw.	R. B. Hudson.	
St. Ignace.	Mackinac.	593	19	69.0	+ 5.6	89	25	43	21	34	1.15	-	1.86	0.60	0.0	4	25	0	6	w.	Agent, D. S. S. & A. Ry.	
St. James ^a .	Charlevoix.	681	3	70.2	-	89	8	50	11	20	1.42	-	0.51	0.0	0	5	14	11	5	e.	Rev. N. Wilhelm.	
St. Johns.	Clinton.	730	17	72.2	+ 1.7	91	25	49	30	24	2.90	-	0.51	0.80	0.0	5	18	5	3	sw.	City of St. Johns.	
St. Joseph.	Berrien.	503	23	72.2	+ 1.7	91	25	49	30	24	2.90	-	0.51	0.80	0.0	5	19	0	7	sw.	Agent, P. M. R. R.	
Sandusky ^a .	Sanilac.	780	14	71.4	+ 3.1	93	25†	41	30	37	3.57	-	0.20	1.11	0.0	10	12	9	10	sw.	John Wallington.	
Saranac.	Chippewa.	614	21	64.6	+ 4.0	90	6	40	30	34	3.49	-	0.06	1.74	0.0	8	11	9	11	sw.	U. S. Weather Bureau.	
Sault Ste. Marie.	Van Buren.	558	13	66.6	- 1.1	85	14†	44	30	28	2.85	-	0.01	1.40	0.0	5	20	9	2	nw.	Mrs. M. E. De Diemar.	
South Haven.	Montcalm.	880	17	-	-	90	27	42	30	35	2.72	-	1.05	0.16	0.0	10	13	10	8	sw.	City of Stanton.	
Stanton.	Gogebic.	1,347	12	65.6	+ 2.8	88	4†	35	30	39	4.60	-	1.58	1.10	0.0	6	10	17	4	w.	Agent, D. S. S. & A. Ry.	
Thomaston.	Lapeer.	975	32	68.9	+ 0.7	91	25†	44	21	37	3.05	-	0.13	1.02	0.0	0	7	20	8	3	se.	Dr. J. S. Caulkins.
Thornville.	Grand Traverse.	588	12	70.8	+ 3.5	98	25†	42	31†	33	2.00	-	0.44	1.00	0.0	3	18	0	11	n.	Agent, G. R. & I. Ry.	
Traverse City ^a .	Tusscola.	641	9	71.6	+ 3.3	93	26	40	21	44	1.05	-	1.63	0.50	0.0	4	25	0	6	w.	Agent, P. M. R. R.	
Victoria.	Ontonagon.	605	-	67.0	-	90	27	42	30	35	2.72	-	1.05	0.16	0.0	10	13	10	8	sw.	R. S. Schults, Jr.	
Watersmeet.	Gogebic.	881	12	65.8	-	88	7	34	30	40	5.45	-	2.50	0.0	0	13	9	14	8	sw.	B. H. Grant.	
Webersville.	Summit.</td																					

TABLE 1.—Climatological data for August, 1909. District No. 4—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.					Sky.			Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmelted.	Number of rainy days, 0.1 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Ohio—Cont'd.																			
Upper Sandusky.	Wyandot.	854	27	72.4	+ 1.5	92	8	43	22	37	8.30	+ 5.61	4.85	0.0	11	20	9	2	nw.
Vickery.	Sandusky.	583	17	72.3	+ 1.2	95	25	43	22	34	3.44	+ 0.62	1.68	0.0	7	14	15	2	ne.
Wauseon.	Fulton.	780	40	71.4	+ 1.2	92	8	43	23	35	4.84	+ 2.23	2.40	0.0	8	17	10	4	e.
Wellington.	Lorain.	856	17	71.4	+ 0.2	94	25	41	22	40	3.81	+ 0.98	1.53	0.0	12	18	11	2	nw.
Willoughby.	Lake.									2.31	- 0.11	0.60	0.0	10	12	12	7	n.	
Pennsylvania.	Erie.	713	36	69.2	- 0.7	85	14	48	22	21	1.76	- 1.50	0.90	0.0	6	12	13	6	s.
New York.	Erie.																	U. S. Weather Bureau.	
Adams Center.	Jefferson.	540	18	67.8	.....	90	25	42	31	30	2.36	- 0.07	1.40	0.0	8	16	12	3	s.
Angelica.	Allegany.	1,340	26	63.4	- 1.6	91	8	32	22	45	2.20	- 1.83	1.00	0.0	6	2	13	16	w.
Appleton.	Niagara.	270	18	68.6	+ 1.9	96	25	42	22	35	1.89	- 1.10	1.43	0.0	5	18	11	2	nw.
Auburn.	Cayuga.	715	40	67.4	- 1.4	95	8	42	31	35	1.50	- 2.03	1.00	0.0	6	27	2	2	n.
Avon.	Livingston.	585	14	67.1	- 0.5	93	8	39	31	41	0.57	- 2.42	0.40	0.0	3	20	8	3	....
Benson Mines.	St. Lawrence.																	R. C. Folger.	
Blue Mountain Lake.	Hamilton.	1,750	9								3.15		1.75	0.0	5	23	2	6	w.
Brockport.	Monroe.	537	13	68.6	- 0.1	90	8	42	30	35	3.14	+ 0.55	2.18	0.0	7	18	12	1	....
Buffalo.	Erie.	767	58	69.4	+ 0.6	88	7	50	31	1.69	- 1.30	0.72	0.0	8	11	8	12	sw.	
Canton.	St. Lawrence.	443	15	66.0	- 1.8	90	8	41	31	34	2.50	- 0.10	1.10	0.0	10	15	11	5	sw.
Cape Vincent.	Jefferson.	246	4	67.2		84	8	41	30	30	3.36		1.84	0.0	6	20	9	2	sw.
Carvers Falls.	Washington.	243	11	65.5	- 0.0	93	8	38	31	34	2.23	- 1.13	1.10	0.0	5	22	5	4	s.
Chazy.	Clinton.	151	15	67.9		94	8	37	31	49	4.28		1.35	0.0	7	20	3	8	n.
Dannemora.	Franklin.	1,490	4	65.2		90	25	38	31	30	2.56		0.72	0.0	8	8	15	3	sw.
Elba.	Genesee.	500	10	66.4	- 0.7	88	8	40	22	34	1.79	- 0.70	1.15	0.0	3	25	3	3	sw.
Fausti.	Fayetteville.	1,552	9	61.4		85	5	34	31	35	1.65		0.79	0.0	7				Aaron W. Maddox.
Franklin.	Onondaga.	530	8	69.6		97	8	42	30	36	1.45		0.56	0.0	8	23	3	5	nw.
Gabriels.	Franklin.	1,729	7	61.4		90	8	27	31	46	3.07		1.70	0.0	8	11	14	6	nw.
Harkness.	Clinton.	622	6	66.0		92	8	37	31	32	2.56		0.62	0.0	9	21	5	5	s.
Hemlock Lake.	Livingston.	900	11	67.2	- 1.7	89	8	40	31	33	1.25	- 1.50	0.60	0.0	4	21	5	5	sw.
Hunt.	.... do.	1,321	10	67.7	+ 0.2	96	8	40	22	36	2.32	- 0.46	0.75	0.0	6	16	13	2	ne.
Ithaca.	Tompkins.	928	31	67.3	- 0.9	95	8	42	22	38	1.63	- 1.61	0.50	0.0	7	14	9	8	nw.
Keene Valley.	Essex.	1,000	11	64.6	+ 0.5	92	8	31	31	45	2.05	- 1.73	0.64	0.0	10	16	5	10	s.
Keuka Park.	Yates.	750	03	69.2		98	8	41	31	41	2.43	- 0.48	1.06	0.0	10	20	5	6	nw.
King Ferry.	Cayuga.									2.10	- 3.10	0.65	0.0	7	21	4	6	w.	
Lake George.	Warren.	380	4	66.2		96	8	40	31	37	3.83		1.25	0.0	10	17	10	4	ne.
Lake Placid Club.	Essex.	1,864	1	59.2		84	25	30	31	36	2.87		0.64	0.0	11	20	x	3	sw.
Le Roy.	St. Lawrence.	920	19	68.0	+ 1.1	92	8	43	30	34	1.24	- 2.11	0.44	0.0	10	16	5	10	sw.
Lockport.	Niagara.	650	22	68.2	+ 0.2	90	8	44	31	30	0.90	- 1.80	0.48	0.0	5	18	8	5	sw.
Lowville.	Lewis.	900	43	64.0	- 0.8	89	8	32	31	43	2.53	- 0.84	1.65	0.0	4	21	6	4	w.
Lyndonville.	Orleans.									1.57	- 0.97	1.48	0.0	27	2	2	2	sw.	
Moirs.	Franklin.	200	9	67.8		92	25	39	31	34	2.14		0.71	0.0	9	11	18	2	w.
Nchasee.	Hamilton.	1,750	1	60.4		88	8	30	31	44	2.31		0.96	0.0	10	21	3	7	c.
North Hammond.	St. Lawrence.	300	20															H. A. Paulls.	
North Lake.	Herkimer.	1,822	8															State Hospital.	
Ogdensburg.	St. Lawrence.	175	17	67.8	+ 0.6	90	7	41	31	41	2.47	- 0.74	1.00	0.0	6	22	8	1	sw.
Old Forge.	Herkimer.	1,733	1	62.4		90	8	34	31	42	2.32		0.88	0.0	8	13	12	6	....
Oswego.	Oswego.	335	39	66.5	- 2.3	88	25	44	31	30	2.00	- 0.63	1.73	0.0	8	17	7	7	s.
Otto.	Cattaraugus.	1,410	5															U. S. Weather Bureau.	
Palermo.	Oswego.	460	50															E. B. Bartlett.	
Perry City.	Schuyler.	1,038	19	68.2	+ 2.1	93	8	36	31	43	2.72	- 1.44	0.75	0.0	6	17	9	5	nw.
Philadelphia.	Jefferson.	485	3	67.6		88	25	41	31	35	2.08		1.01	0.0	9	8	21	2	w.
Plattsburg.	Clinton.	170	50	66.5	- 0.8	96	8	44	30	35	2.19	- 1.27	0.70	0.0	10	15	12	4	s.
Potsdam.	St. Lawrence.	300	33															Lloyd W. Weed.	
Raquette Lake.	Hamilton.	1	62.0			84	8	37	31	30	1.79		0.75	0.0	6	15	7	9	w.
Rochester.	Monroe.	523	80	69.1	+ 0.8	91	8	46	22	34	1.70	- 1.26	1.02	0.0	7	15	11	5	sw.
Romulus.	Seneca.	719	17															F. Budlong.	
Scottsville.	Monroe.																	C. H. Latting.	
Shortsville.	Ontario.	740	10	67.9	- 0.1	90	8	44	30	32	2.39	- 0.40	1.01	0.0	7	21	6	4	nw.
Skaneateles.	Onondaga.	9																Edward Conson.	
Syracuse.	.... do.	597	7	70.4	- 1.2	92	8	44	31	29	1.84	- 2.32	1.00	0.0	9	7	15	10	sw.
Ticonderoga.	Essex.	344	11			100	8	40	31	30	3.01	- 0.11	1.01	0.0	4	19	5	7	s.
Trudeau.	do.	1,620	16															U. S. Weather Bureau.	
Vulsa.	Chautauqua.	1,167	10	67.1	+ 0.4	85	8	45	22	30	4.28	+ 1.63	1.64	0.0	7	14	15	2	n.
Watertown.	Jefferson.	737	16	67.2	- 1.1	89	8	40	31	34	2.29	- 1.62	0.84	0.0	8	22	5	6	nw.
Wedgwood.	Schuyler.	1,430	20	67.8	0.0	95	8	44	22	35	2.69	- 1.83	0.80	0.0	8	20	12	6	se.
Westfield.	Chautauqua.	837	13	67.5	- 1.2	86	8	48	22	25	4.84	+ 1.68	2.17	0.0	6			John R. Rogers.	
Youngstown.	Niagara.	7									3.43		2.81	0.0	4	12	18	1	v.
Burlington.	Chittenden.	404	3	65.2	- 0.9	92	8	38	31	33	2.83	- 1.18	....	0.0	13	6	14	11	s.
Cornwall.	Addison.	507	17	66.8	- 1.1	95	8	40	31	32	3.28	- 0.35	1.35	0.0	9	13	9	7	n.
Enosburg Falls.	Franklin.	601	19	64.4	- 0.2	91	8	37	31	41	3.26	- 0.03	0.74	0.0	14	12	10	9	n.
Northfield.	Washington.	876	24	61.2	- 1.7	89	8	31	31	38	2.53	- 1.40	0.77	0.0	11	9	15	7	s.
Wells.	Rutland.	750	18	64.2	- 2.2	86	8	40	31	28	3.68	- 0.70	1.24	0.0	10	13	13	5	s.

• Precipitation included in that of the next measurement.

• Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.

† Also on other dates.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

|| Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

¶ Estimated by observer.

||| Precipitation for the 24 hours ending on the morning when it is measured.

†† Precipitation is less than 0.01 inch rain or melted snow.

*, †, ‡, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

TABLE 2.—*Daily precipitation for August, 1909. District No. 4, Lake Region.*

TABLE 2.—*Daily precipitation for August, 1909. District No. 4—Continued.*

TABLE 2.—*Daily precipitation for August, 1909. District No. 4—Continued.*

Stations.	River basins.	Day of month.																																								
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total									
New York—Cont'd.																																										
Benson Mines.	St. Lawrence.									.87	.03																								.31	2.24						
Blue Mountain Lake.	do.								T.																										.37	5.15						
Brockport.	Ontario.																																			.11	3.14					
Buffalo.	Erie.																																			1.69						
Canton.	St. Lawrence.									.01																										.45						
Carvers Falls.	do.																																				.03					
Champlain.	Champlain.																																					.23				
Chazy.	do.																																					.40	4.38			
Dannemora.	do.																																					.25	2.56			
Elba.	Ontario.																																					.35	1.79			
Faust.	St. Lawrence.																																					.01	1.65			
Fayetteville.	Oswego.																																					.13	1.45			
Gabriels.	Champlain.																																						.05	3.97		
Harkness.	Champlain.																																						.54	2.56		
Hemlock Lake.	Genesee.																																						.20	1.32		
Hunt.	do.																																						.27			
Ithaca.	Oswego.																																						.11	1.63		
Keene Valley.	Champlain.																																						.05	2.05		
Keuka Park.	Oswego.																																						.22	2.43		
King Ferry.	do.																																						.10	2.10		
Lake George.	Champlain.																																						.03	3.83		
Lake Placid Club.	do.																																						.53	2.67		
Le Roy.	Genesee.																																						.09	1.24		
Lockport.	Ontario.																																						.30	0.90		
Lowville.	do.																																						.25	2.50		
Lyndonville.	do.																																						.09	1.57		
Moirs.	St. Lawrence.																																						.71	2.14		
Nehasane.	Ontario.																																						.46	2.31		
North Hammond.	St. Lawrence.																																							.03	2.47	
North Lake.	Ontario.																																							.29	2.32	
Ogdensburg.	St. Lawrence.																																							.01	2.00	
Old Forge.	Ontario.																																							.02	2.00	
Oswego.	Erie.																																								.77	
Palermo.	Oswego.																																								.13	2.72
Perry.	do.																																								.81	2.08
Philadelphia.	St. Lawrence.																																								.02	2.19
Plattsburgh.	Champlain.																																							.05		
Potsdam.	St. Lawrence.																																							.05		
Raquette Lake.	do.																																							.05	1.79	
Rochester.	Genesee.																																							.04	1.70	
Romulus.	Oswego.																																								.77	
Scottsville.	Genesee.																																							.13	2.72	
Shortsville.	Genesee.																																							.81	2.08	
Skaneateles.	Oswego.																																							.02	2.19	
Syracuse.	do.																																							.03	1.94	
Ticonderoga.	Champlain.																																							.03	3.01	
Trudeau.	do.																																							.04		
Volusia.	Erie.																																							.41	4.38	
Watertown.	Ontario.																																							.59	2.29	
Wedgwood.	Oswego.																																							.06	2.09	
Westfield.	Erie.																																							.99	2.04	
Youngstown.	Ontario.																																							.26	3.43	
Burlington.	Champlain.																																							.22	2.83	
Cornwall.	do.																																							.25	3.28	
Enosburg Falls.	do.																																							.29	3.26	
Northfield.	do.																																							.13	2.53	
Wells.	do.																																							.27	3.08	

TABLE 3.—Maximum and minimum temperatures at selected stations, August, 1909. District No. 4, Lake Region.

Date.	Duluth, Minn.				Wisconsin.						Michigan.															
	Max.	Min.	Max.	Min.	Florence.	Green Bay.	Milwaukee.	Chicago Ill.	Fort Wayne, Ind.	Alpena.	Battle Creek.	Cadillac.	Detroit.	Escanaba.	Ewen.	Houghton.	Marquette.									
1...	61	51	70	60	78	64	73	66	81	70	90	57	74	62	85	62	79	72	82	65	76	62	70	58	72	57
2...	66	53	80	50	81	63	75	64	79	73	91	62	76	60	79	62	86	60	76	65	74	65	80	59	78	64
3...	78	61	81	57	84	63	77	68	81	72	90	65	74	64	85	64	91	56	80	68	73	66	82	65	81	64
4...	82	58	81	60	81	66	83	69	86	73	89	64	71	63	82	65	84	64	79	67	80	63	79	64	82	66
5...	82	60	88	58	90	63	82	67	80	73	91	65	80	60	83	63	90	58	81	77	80	60	85	60	82	66
6...	82	59	88	59	94	64	81	68	84	73	88	59	88	60	85	59	92	59	83	62	81	67	88	63	92	66
7...	79	61	89	65	92	66	82	70	84	74	92	58	88	63	89	62	95	60	87	68	85	66	86	66	81	68
8...	68	59	77	67	91	71	92	70	93	73	95	60	92	64	90	60	90	60	90	72	76	66	76	59	77	63
9...	72	58	77	57	79	67	82	66	81	72	91	65	82	63	86	60	84	65	84	66	80	63	73	58	73	61
10...	65	56	73	48	75	60	76	68	75	71	89	67	68	53	79	60	80	54	75	57	73	59	66	57	65	56
11...	60	55	61	52	66	62	71	65	79	68	86	57	73	50	75	55	67	57	72	57	64	57	61	57	60	56
12...	59	54	69	55	74	62	72	68	78	71	85	65	71	58	79	60	77	55	75	57	70	62	68	60	64	59
13...	58	54	75	57	76	64	77	68	77	70	87	68	77	53	83	61	82	56	80	65	73	62	75	59	67	60
14...	80	57	81	62	79	68	77	71	89	70	77	65	77	54	78	65	81	61	83	66	70	66	79	62	79	64
15...	84	63	84	62	89	68	88	68	85	72	90	71	85	65	85	68	85	69	89	64	79	64	80	66	76	63
16...	71	59	73	58	78	64	79	67	84	71	90	63	78	62	85	63	80	64	80	60	74	62	88	59	66	62
17...	82	61	74	50	75	58	74	62	75	68	79	58	75	59	78	58	75	59	77	63	74	60	77	58	68	62
18...	79	62	84	80	80	80	84	64	86	80	90	57	82	60	81	56	83	55	78	62	81	57	77	62	78	62
19...	73	51	79	51	86	59	85	66	82	69	88	60	84	55	85	59	85	57	84	61	80	55	69	54	71	54
20...	65	50	67	44	70	53	71	60	75	66	81	61	67	49	77	57	74	51	74	57	66	47	64	51	60	49
21...	82	58	78	41	79	51	71	59	72	65	80	50	69	42	78	58	80	40	69	54	71	45	85	50	79	51
22...	78	61	72	58	82	63	81	60	83	64	84	46	84	57	81	51	79	56	72	61	75	55	73	60	73	
23...	70	59	79	61	82	61	84	65	86	67	89	50	76	63	86	54	88	61	82	60	73	57	76	52	77	63
24...	76	64	90	61	94	94	70	90	98	91	97	63	93	55	93	65	91	61	93	66	87	67	82	68	77	63
25...	77	63	85	59	93	71	84	73	85	72	92	61	90	70	91	66	91	66	92	68	79	64	71	61	74	64
26...	73	59	81	58	90	64	79	70	80	71	94	68	83	62	90	69	88	65	89	71	79	58	75	60	74	61
27...	81	61	81	59	81	68	76	66	83	71	92	68	75	55	87	57	85	60	85	70	77	66	90	59	86	63
28...	69	51	73	58	81	61	81	64	87	68	95	66	82	58	88	65	84	64	85	66	79	57	75	58	75	58
29...	61	48	67	67	70	50	69	68	77	54	82	62	65	46	74	59	77	53	76	57	63	44	53	47	58	44
30...	72	52	65	40	71	49	67	60	69	69	77	54	63	42	74	57	74	38	68	50	64	41	56	44	59	44
31...	56	41	58	45	63	46	74	49	76	59	84	50	60	43	74	55	67	48	77	53	64	40	56	45	58	47
Mns	72.4	56.7	76.8 ^b	55.6 ^b	80.8	61.9	78.5	65.3	80.7	69.0	87.4	60.5	77.4	57.5	82.7	60.5	82.7	58.4 ^a	80.5	62.5	74.4	59.0	74.4	57.8	72.7	59.0

Date.	Michigan.						Ohio.						New York.						Vermont.									
	Muskegon.		Saginaw, W. S.		Sault Ste. Marie		Cleveland.		Lima.		Sandusky.		Toledo.		Erie, Pa.		Buffalo.		Canton.		Rochester.		Syracuse.		Burlington.		Northfield.	
1...	79	63	84	58	78	57	77	62	88	61	78	67	82	64	75	64	77	62	75	47	74	62	78	58	75	53	74	48
2...	81	63	80	59	79	56	76	64	84	63	77	69	77	68	76	62	82	60	78	51	73	60	79	57	82	52	84	
3...	84	61	85	61	82	56	82	66	84	63	82	67	86	67	83	68	83	58	82	64	84	62	80	60	80	60	79	
4...	84	69	79	65	74	58	81	62	76	69	82	65	83	68	80	60	84	62	83	56	84	62	80	60	80	60	79	
5...	81	65	82	62	86	55	75	61	87	67	82	67	84	66	79	65	79	60	82	59	81	57	87	60	85	60	76	
6...	84	64	90	59	90	56	75	65	85	62	79	69	81	62	78	65	84	63	82	59	82	57	87	55	78	56	75	
7...	85	62	93	63	81	60	80	69	89	61	82	66	86	66	83	66	88	67	88	60	85	67	87	58	75	53	73	
8...	87	68	93	62	83	63	85	68	87	62	86	66	82	62	87	67	85	67	85	60	83	66	85	65	75	58	73	
9...	84	67	85	71	73	58	79	69	87	66	84	68	72	86	71	79	73	76	68	81	64	82	63	81	60	71		
10...	79	60	77	56	71	54	72	65	82	63	87	66	76	66	85	77	79	73	77	65	82	63	80	60	75	53	75	
11...	74	59	74	57	74	54	73	59	81	56	74	61	77	57	70	56	75	55	76	47	70	57	73	53	72	44		
12...	79	59	73	53	74	58	73	60	77	62	77	66	73	63	74	62	76	57	81	48	73	54	74	40				
13...	85	61	84	68	80	53	74	65	83	63	78	65	79	66	76	64	82	67	81	56	79	64	80	55	75			
14...	82	63	84	60	75	59	81	67	86	64	80	71	78	63	85	67	84	68	83	56	85	65	81	60	78			
15...	81	66	88	70	74	61	83	70	86	64	86	71	78	71	79	67	73	68	77	53	72	63	80	57	75			
16...	78	64	80	63	69	60	76	64	86	65	87	67	84	67	87	66	78	63	80	60	73	59	73	54	71			
17...	72	58	75	56	67	57	72	66	77	63	76	68	77	62	73	60	75	58										